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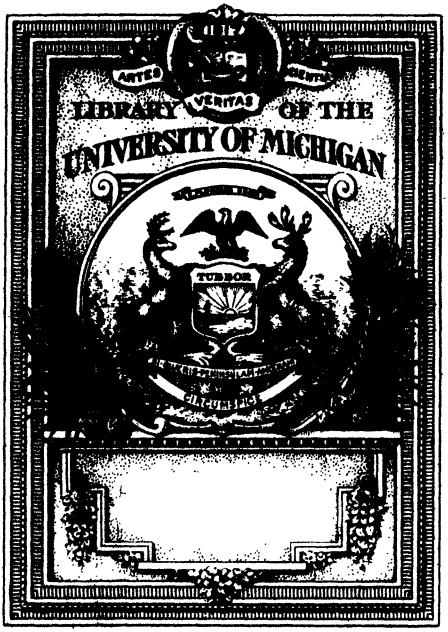

May 15. YEAR 1915

The AMERICAN DENTAL JOURNAL

BERNARD J. CIGRAND, M. S., D. D. S.
Editor & Publisher & Proprietor.

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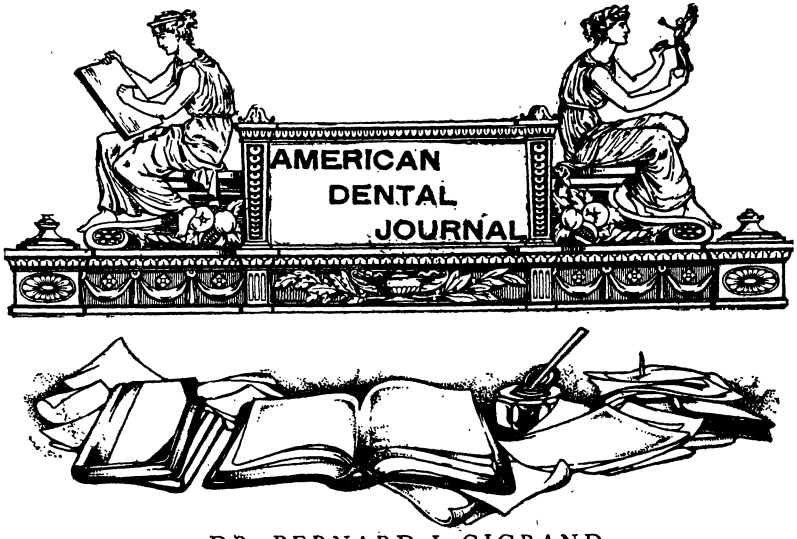


DR. BERNARD J. CIGRAND

EDITOR * * PUBLISHER * * PROPRIETOR

ENTERED AS SECOND-CLASS MATTER AT BATAVIA, ILL.

May 15 Editorial and Comment 1915

THE TELEPHONE GIRL AND DENTAL NEGLECT

The Bell Telephone Company has instituted an investigation which will be of considerable interest to both the dentist and the public in general. The officials have determined, after having received a report from distinguished physicians, that the girl operators who have diseased teeth are not efficient, and they neglect their work unconsciously; besides their auditory nerves are influenced by the disordered oral tissues. There are hundreds of thousands of girl operators, and the world will receive better telephone service when these operators have their dental and oral tissues placed in better order.

It may seem strange that a young lady, before assuming her duties as a telephone girl, should first have her throat and teeth examined, but after a moment's thought the strangeness

of such a procedure passes away, and we wonder why such an examination was not instituted years ago.

The facts are that a girl operator or a boy operator who is arranging the lines and taking messages of the voice must have the ears in perfect condition. The ability to quickly and accurately hear the message prevents the too frequent question, "What number did you call?" and the thousands of times that this and other similar questions are asked only kills time, interferes with business, and delays thousands in their transaction of commercial, industrial and educational accomplishments. Now there are two phases where the dental distress or disorder interferes in the proper hearing of 'phone messages. First among these is where the operator is suffering from toothache or dental or oral abscess; and in such event it is not uncommon for the operator to be absolutely inattentive and in a momentary lapse of mind, since the pain practically disconnects all thought transfer—hence really a blank or momentary dementia The second where there is no pain, but where, because of dental inflammations or circulatory congestion, there is encroachment upon the Eustachian tube, and which interference lessens the power of the nerve of hearing. In either instance the operator is unable or unconsciously incapable of getting the message, and the patron wastes time repeating the call or message.

It will redound to the credit of the telephone company to institute this general overseeing of the dental organs of all its operators. The world will be wonderfully better served, and the dental service will be splendid for the operators, and incidentally the man behind the bur will also profit; and this latter feature happens to please the other operator (generally known as a practitioner).

There is another item in this campaign of the telephone company, and that is the fact that medical men, and not dentists, have instituted this examination; and hence the new and very important health element comes to us by way of our kindred professions—the aurist, physician and surgeon. Thanks for your generous consideration; glad you are eventually coming to realize how valuable dental attention is, and we surely

appreciate your long deferred comment and praise for good dentistry.

While the medical profession and its immediate specialists have of late been very liberal with their recommendation, "Go and have your teeth restored," the facts are this same item of dental care to insure perfect ear-power was known and preached about for many years by members of our profession; but little heed was given it even by dental practitioners.

Permit me to call your attention to the splendid writings of J. F. Colyer, L.R.C.P., L.D.S., English dental surgeon of Charing Cross Hospital, also of the Royal Dental Hospital, who as an author of dental books and an authority of recent dental research has impressed your editor with the thought that he is indeed an Englishman of whom the world may well be proud. His writings are carefully thought out and his deductions are usually founded on logic. When I learned of the action of the telephone company I immediately referred to the magazine writings of Professor Colyer, and, as usual, I was not disappointed, and here is what that famed Briton writes:

"Affections of the ear due to reflex irritation from the teeth are uncommon, and in a large number of cases formerly attributed to reflex irritation from the teeth it is probable that septic absorption from the teeth only acted as an aggravation of a condition started by other causes.

"Otalgia is frequently traceable to teeth. Politzer states that carious teeth are the most frequent causes of otalgia in children. In cases of otalgia, where there are no inflammatory or other abnormal phenomena in the ear itself to account for the trouble, the teeth should always be examined, as under such conditions the otalgia is invariably connected with the teeth. Even when there is evidence in the ear to account for the otalgia, the possibility of the teeth aggravating the pain should not be forgotten.

"Deafness without any lesions in the ear is at times apparently traceable to reflex trouble from an unerupted third molar. In a case under my care a patient developed what she termed a "worry" in the ear, which interfered with her hearing. The

ear was free from organic disease, and the only possible cause in the mouth was an unerupted misplaced molar. With the eruption and removal of this tooth the symptoms passed away. Mr. J. Howard Mummery records a case of considerable deafness on the left side (which had existed for months) in association with the delayed eruption of the third maxillary molar. The extraction improved the hearing immediately."

Nor does this lack of dental attention apply only to telephone operators; for it is just as true relative to telegraph operators, and because of toothache or possibly a painless dental interference with the Eustachian tube there may be hundreds dashed to their death. This was well proven in a recent passenger wreckage, where a score of people lost their lives, and at the coroner's inquest it was established that the operator who was to have received the message, "Clear way for special," because of the excruciating pain of an ulcerated tooth, was momentarily demented, and possibly there was stoppage of all thought. Now this thoughtlessness may not have continued more than twenty seconds, but it was long enough to let the important message get past. Hence, where human safety depends upon the ear-power of some individual or operator, it is essential that he or she has the teeth in faultless condition, or the public pays dearly for this dental neglect.

Dr. James W. White, that careful and distinguished editor of the *Dental Cosmos*, said twenty-five years ago that dental irritation and loss of hearing were associated. He was a man of unusual ability, had perfected his dental study and added the degree of doctor of medicine to that of dentistry, and I am pleased to add what he wrote:

"There is reason to believe that earache is often associated with and dependent upon the difficult eruption of one or more teeth, and that, apart from the aggravation of the fever and the increased liability to convulsions incident to this added anguish, there is also the possibility of the loss of hearing (entailing in young children the loss of speech) from the congestion and inflammation which result. But this is not the only—indeed, not the chief—danger. The inflammation is liable

to extend to the membranes of the brain and end in death. The facility with which an irritation originating in the mouth may be continued to the ear, and thence to the brain, can readily be understood by a recognition of the intimate relations which exist between the parts concerned and of their elaborate nervous connections."

Dr. Beck's article in this issue of THE AMERICAN DENTAL JOURNAL is interesting along this line.

In 1894 the aurist, Dr. Burns, of New Orleans, made the statement that in his experience he observed that: "The ear which usually indicated loss of hearing was usually on the side of the face or head where there were decayed or disturbing teeth."

Dentists well know that there is a keen relationship between toothache and earache, and that not infrequently the dentist treats an aching or erupting tooth and the earache stops immediately; and cases are on record where a severe toothache could not be stopped by treating the tooth, but by applying cotton properly medicated with an anodyne, and inserting it into the vestibule of the ear, the pain in the tooth was caused to pass away.

In view of the fact that this topic has become of public concern, I will continue this editorial, and will kindly ask that the readers send in their experiences as relate to the association of poor hearing power with bad condition of the teeth. If we can impress our patrons with the thought that in the loss of the teeth there is often a loss of the hearing, or if we can awaken the idea that good teeth also means good ear power, we will have contributed essentially to human comfort, and indirectly have caused our profession to be of greater service to our fellow man.

[To be continued.]

COMMENT

MANY of the subscribers wrote thanking us for the exact law on the use of narcotics and anæsthetics. Do not forget that you are to renew your license on July 1st. Failure to

attend to this might involve you in much difficulty and cost you much money. The best way to see that matters of this important kind are looked after on the exact date is to register or enter it on your appointment book, and place it on your day of Wednesday, June 30th.

* * *

IN our next issue we will give you a review of the new book just issued by Dr. Edmund Noyes, professor of ethics and jurisprudence at the Northwestern University Dental School. The book relates to the subject he teaches, and it will pay you to read the review of this splendid reference work. The book sells for $2. If you are eager to have it send in your order to THE AMERICAN DENTAL JOURNAL, and it will be promptly sent to you.

* * *

WHILE the following letter to your editor from Dr. W. W. Belcher may be construed as a bit of private correspondence, it can only bring good to present it to my readers. The truth here is well proposed, and the communication is as follows:

"In the building and endowment of the Forsyth Dental Infirmary for Children the dental profession has received an uplift that is world wide. No one who views this institution—erected for the betterment of uncounted generations of children yet unborn—can but be impressed with the unselfish character of the man who made the gift, and also of the two brothers left to carry out his wishes. One of these has since passed away, and there remains Thomas A. Forsyth, whose duty and pleasure it has been to add to and embellish the original plan. Today this institution stands as a permanent memorial, with an endowment of a million and a half, enabling the trustees to not only conduct the work of caring for the teeth of the worthy poor, but to enter the research field; and thus it is to be a beacon light and standard so long as it shall endure. The writer suggests that the dental profession secure by subscription among its members an amount sufficient to purchase a beautiful loving cup, which shall be placed in the donor's room of the Forsyth Dental Infirmary, and there remain for all time a token of our appreciation. To properly represent the dental profession it

should have the united support and endorsement of every dental society and dental journal in the land.

"Will you present this subject before the next meeting of your state society, and see that it is brought before the National Dental Association and the Panama-Pacific Dental Congress? Do not let us adjourn these meetings without taking steps that will make the presentation of a loving cup an accomplished fact. To do less will be a disgrace."

The editor of *Oral Hygiene*, Dr. Belcher, has an idea which deserves to be translated into objective form, and this journal will support the movement.

OUR TEETH

[Taken from "Oral Hygiene."]

Babies look like queer old men—
Not a tooth about.
Just you watch awhile, and then
Teeth begin to sprout.

Sprout until he's two years old;
And there, like winter snows,
Twenty milk teeth, strong and bold,
Stand up in two straight rows.

And when he's seven they fall! fall! fall!
He sighs, "Oh, dear! how wrong!"
He fears new ones won't grow at all;
But soon they come along.

And when he's big and grown
He has the right to boast—
He has thirty-two, as hard as stone,
To chew his good rare roast.

And when he's old, like grandpa, dear,
With smiles across his face,
They drop until they're gone, I fear,
And no more fill their place.

At first the baby's an old man;
We said so when he smiled;
And grandpa ends where he began—
A funny, toothless child!

ORIGINAL CONTRIBUTIONS

CO-OPERATION OF DENTIST AND OPHTHALMOLOGIST*

By Dr. Joseph C. Beck, Chicago, Ill.

It is nearly twelve years since I have had the pleasure of speaking before the dental profession of Chicago on a similar topic as I am doing tonight. I wish to express my sincere appreciation for having been invited to do so, and assure you that I am cognizant of the fact that I shall not be able to do the subject justice from the standpoint of the dental profession. I shall, however, be satisfied if I can arouse a discussion which will clear up many points which are of vital importance to the patient, the general public, the general medical profession, the various specialties, with particular reference to the ophthalmologist and oto-laryngologist. The dental profession has for a long time shown its independence apart from the medical profession, yet there can be no question of the intimate relationship of the dentist to the medical man. The wonderful strides that the dental specialty has made in the last ten years is so noticeable that the dentist that graduated before that time has to acquire many new phases of the subject if he wishes to be known as a modern dentist. Especially is it true in reference to oral hygiene and systemic infection from the teeth and alveoli. The public has been so thoroughly acquainted with this fact that not alone the well-to-do, but also the poorer classes, pay much more attention to their mouths and teeth than they used to. The examinations of the teeth and mouths of school children has had much to do with that, and I believe that Dr. Frank Allport should receive a great deal of credit for the pioneer work he started by the compulsory examination of children's eyes, then nose, throats and ears, and finally the teeth. It is

*Read before the Odontological Society of Chicago October 13, 1914.

only one step further, and that is thorough physical examination, including all the important laboratory tests. Just imagine how many diseases will thus be prevented or stopped at their very onset, and consider the value of such records for future reference!

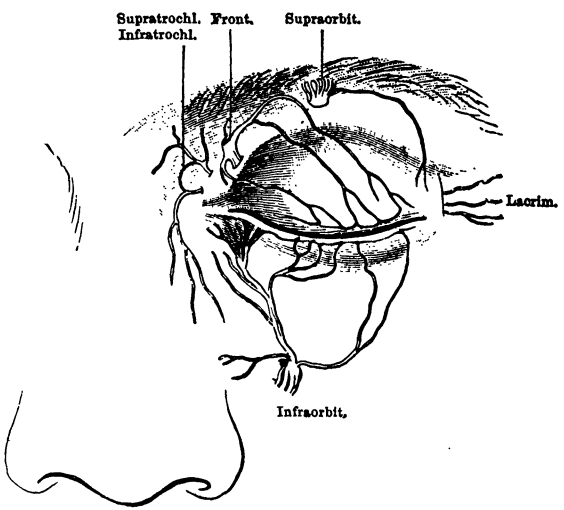
I shall consider systematically and briefly the following points:

1. Orthodontia and the rhinologist.
2. Diseases of the teeth and alveoli in relation to chronic focal infection.
3. Diseases of the teeth in relation to the nose and the nasal accessory sinuses.
4. Diseases of the teeth in relation to the eyes.
5. Diseases of the teeth in relation to the throat.
6. Diseases of the teeth in relation to the ear.
7. The neutral side of the question.
8. The cleft palate and hare lip side of the question.

(1.) *Orthodontia and rhino-laryngology.* Orthodontia has shown beyond the question of a doubt that the nasal chambers can be made much larger and nasal respiration much improved by the proper method of treatment, and I believe that it would be universally applied if it was possible from the pecuniary point of view, but the great majority of people requiring such work are not in a position to have it done. Another point that the rhinologist is in doubt is as to whether the rapid method, as suggested by G. V. I. Brown, or that of the slow method, as recommended by Drs. Angle, formerly of St. Louis, Case, Noyes and others of Chicago, is the best. Again, it has been found that very seldom, when there was tonsillar and adenoid disease or a deviated septum, did the orthodontic work suffice.

(2.) *Dental and alveolar disease in relation to chronic focal infection.* It is perhaps to Billings more than any other one man that dentists, as well as laryngologists, are indebted for calling attention to the fact so emphatically that diseased teeth and alveoli can and do produce either a chronic toxemia, with its entire train of symptoms, or some distant point of infection, which he calls an embolic process. Per example, from one or more alveoli or teeth there will pass into the blood stream the

microorganisms and lodge in the gall bladder, and there produce a cholecystitis or into the stomach, and cause an ulcer of the stomach, etc. This diseased condition may not be manifest in the teeth, but can be shown by a radiogram of the roots, which is imperative for a diagnosis. Now the reason the rhino-laryngologist is concerned is the fact that the tonsils or nasal accessory sinuses may also be the seat of chronic focal infection in the same individual, and the removal of these foci may still not be followed by a complete cure of the patient. It is absolutely necessary to know that the teeth and alveoli must be examined



before a patient is referred to a general man. I have had some of the most interesting cases along that line.

(3.) *The disease of the teeth in relation to the nose and nasal accessory sinuses.* The formation of fistulæ of the alveoli into the nose are not at all uncommon, and many such cases have been treated for a chronic purulent rhinitis or nasal catarrh, and not until the diseased teeth are cured or removed did the nasal trouble cease.

Dentigerous cysts, which may either encroach upon the nasal chambers or maxillary antrum, are of sufficient frequency

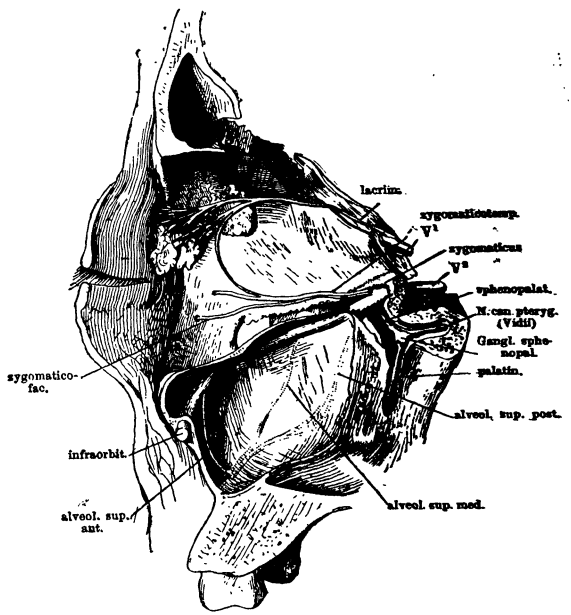
to warrant our consideration. The diagnosis, aside from the physical examination, is absolutely easy by a radiogram. Many of these cysts that I have had contained unerupted and undeveloped teeth. The majority of these had been treated by the methods of irrigations or packing, which can never cure a case, since much more radical measures are necessary to obliterate them.

One of the most frequent conditions encountered in which a differential diagnosis is necessary is alveolar abscess of the superior maxillary in the antero-lateral region and acute antral disease, and unless both the conditions coexist, which is not so rare, Roentgenogram will clear up the diagnosis.

Chronic suppurative sinus disease, especially the antrum of Highmore, is perhaps the closest border line between the dentist and laryngologist that exists, and the accumulated literature on the subject is so voluminous that I shall avoid adding much to it at this time; but I wish to say that I believe the rhinologist very frequently overlooks the etiologic factor in the teeth. Conversely, however, does the dentist overlook the frequency with which the other sinuses, particularly the ethmoid, are secondarily involved, and will continue to suppurate in spite of the removal of the disease of and about the teeth causing the infection?

(4.) *Diseases of the teeth in relation to the eyes.* Aside from the already spoken of chronic focal infection causing infection by an embolus into any part of the eye, there is the affection of the eyes by direct continuity of structure and by the neutral route. I have observed a recurring iritis in a patient that had these attacks once or twice a year for fifteen years; had seen some of the best internists and ophthalmologists in the country; had an iridectomy performed. I removed his tonsils, his antrum was explored, but all with not much success, and not until his teeth were put in first-class condition did this recurrent iritis stop. Many cases of so called idiopathic choroiditis are undoubtedly of dental origin. Secondary involvement of the eye from the tooth by way of the antrum is quite common, and such a condition as orbital cellulitis and retrobulbar infection has been

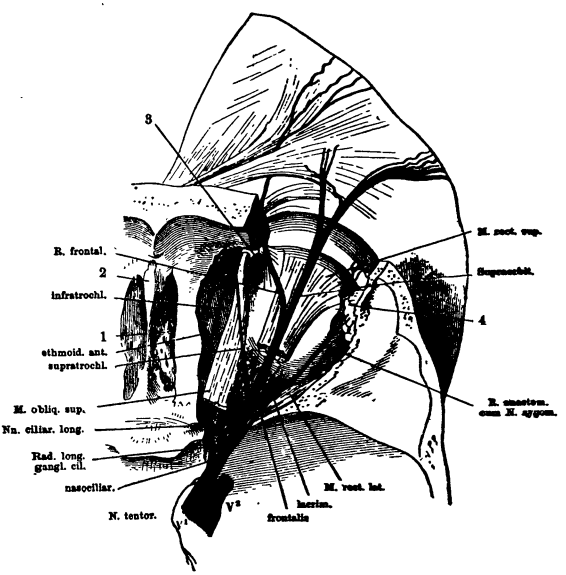
frequently recorded from infected antra, secondary to diseased teeth. Without very much evidence of inflammation the patient can quite rapidly lose his eyesight by affecting the optic nerve by such secondary infection or pressure. In regard to the neural aspect of the eye affection from the teeth by way of the fifth nerve, which I will consider in connection with the neural side of the subject, suffice it to say now that pain in the eyes



and about them, as well as refractory errors due to spasm of the ciliary muscle, is not at all uncommonly due to diseased teeth.

(5.) *Relation of the diseases of the teeth to the throat.* A frequent observation that I have made, and one not very often cited in the literature, is the unilateral pharyngitis, laryngitis and tonsillitis, and even peritonsillar abscess, from an infection about a molar tooth. These recurrent attacks do absolutely stop when such teeth are put in proper condition. The already mentioned fact in relation to chronic focal infection, in determining whether the tonsils, the teeth (or both) were responsible,

is one of the most important subjects of the day to consider. At the present time, when the tonsils are blamed for everything, as rheumatism, etc., and when they are removed and the trouble still continues, but when diseased teeth are placed in good condition the trouble ceases, one will at once notice the importance of this subject. This is not at all rare. I am of the firm belief that many times the pharynx and tonsils are secondarily infected from the teeth, especially in cases of the pyorrhea alveolaris, and that a cycle occurs—namely, that the

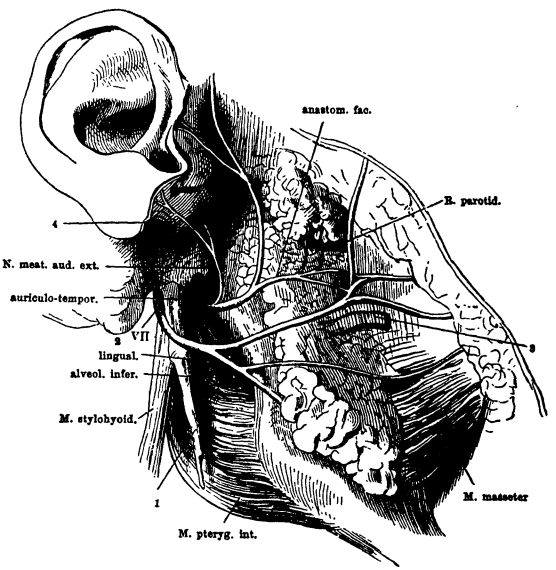


chronic toxemia from such diseased tonsils perpetuate the pyorrhea.

(6.) *Relation of the diseases of the teeth to the ear.* There are perhaps very few instances of a direct involvement of the ear from the teeth by continuity of structure; but from the chronic toxemia or embolism from the chronic focus of infection is by no means rare. The circulation between the teeth and the ears is intimately associated, and by this means do we have many symptoms from the ear produced. So have I

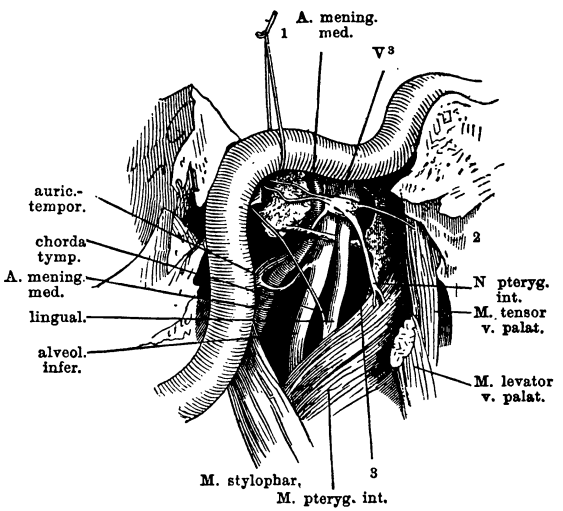
observed a persistent ringing in the ear clear up when the disease of the teeth was corrected. As to the referred pain from the teeth to the ear, and vice versa, it is too common to have to be reiterated, but I will speak of it in connection with the neural side of the question.

(7.) *The neural side of the question or referred pain.* There is not another subject in medicine that is as important to every doctor to know (and know well) as the anatomy, physiology, pathology, symptoms, prognosis, complications and treatment



of the fifth pair of cranial nerves, from their deep origin to the final terminal filaments and association with other nerves, particularly the sympathetic. I repeat the sympathetic. There is also perhaps no more widespread affection than this one,—often spoken of as neuralgia,—which usually runs a very persistent chronic course. If, however, the diagnosis can be made as to the primary point of irritation, and that point can be attacked and removed, then the chances of permanent recovery are good. Once, however, the process spreads to

various branches and the condition of true neuralgia is established, then the prognosis as to recovery is not very good. It must be borne in mind that the pain may be referred from the Gasserian ganglion peripherally, as well as from the terminal filament to the ganglion, and any portions of the nerve in between. One of the best illustrations is the ear pain from the irritation of a tooth, and the toothache from the irritation of the middle or external ear; the path is the same in both instances. One of the most important points in regard to this subject is the knowledge of the various gan-



glia in the course of the fifth nerve owing their association and distribution of the other nerves as the pneumogastric, glossopharyngeal, etc., and the great group of sympathetic nerves. Through these the most complex of sympomatology can be scientifically explained, and by proper treatment corrected. This portion of the study is to me the most interesting of all, and I am sorry that I can not go into detailed discussion, since that would take up too much of your valuable time. It is true, however, that the teeth are very frequently the original seat of the trouble, and yet the patient may, before he has come to the

dentist, have consulted and been treated by the ophthalmologist, oto-laryngologist, neurologist, internist or general surgeon, as well as all the possible now recognized fads and cults. There are, however, many cases that have come under my observation which consulted the dentist by my reference, and he would declare the condition not due to the teeth. I then would treat the patient, and many times it was some operation within the nose or throat. The patient would not be benefited by my treatment, and I would send him back to the dentist, who in turn would examine him, and many times, with very uncomplimentary remarks about me, saying: "There is nothing the matter with the teeth." All this time the dentist's examination has been limited to the ordinary physical examination of the teeth, and not looking beyond by means of a radiogram. I feel that this is the vital point of my subject, and wish that conditions were otherwise.

(8.) *Cleft palate and hare lip and its management by oral surgeons, oto rhinologists and laryngologists.* It is my belief that good team work has to be practiced in such cases between the oral surgeon and rhinologist and laryngologist, because the functions of the nose and throat are often neglected when just the lip and palate are corrected. The speech defects are not the least part of the work to be considered. I wish also to call attention to the malformed jaws that I have seen as a result of the Brophy operation (not performed by Brophy, however), and often wonder if the gentlemen have ever seen or even read carefully of the Brophy operation.

PARAFFIN COMPOUND AS A ROOT CANAL FILLING

[From "Edwards Dental Quarterly."]

Paraffin under its various names (hard paraffin, paraffin wax, solid paraffin, paraffinum durum) is, according to the U. S. A. Pharmacopœia, "a mixture of solid hydrocarbons," chiefly of the methane series, usually obtained by chilling and pressing the distillates from petroleum having high boiling points, and purifying the solid pressed cake so obtained.

Paraffin as a root canal filling was introduced about 1883;

but for some reason, in spite of its many advantages, it has not come into very general use. One great objection which has been urged against its use is that in certain cases the paraffin filling will disappear from the canal after a more or less prolonged period of time; though even in this event the treatment has not been without its advantages, for observation has proved that the canals from which the paraffin had vanished remained free from infection.

Tomes is of opinion that paraffin, having a melting point of less than 45 deg. C. (113 deg. F.), becomes absorbed by the tooth structure. For this reason it is obviously imperative that the paraffin which is used for canal treatment should have a melting point of not less than 55 deg. C. (132 deg. F.).

The addition of antiseptics to insoluble substances has practically little value. If we are desirous of coating a root canal with an antiseptic, it is desirable to apply this antiseptic separately (or dissolved in some volatile medium) prior to the insertion of the permanent root filling. A good formula is: Thymol 2 parts, bismuth trioxide 30 parts, hard paraffin, melting point from 56 to 58 deg. C. (133 to 136 deg. F.), 68 parts.

The most important factor in the filling of the canal with this compound is to have the root canal absolutely dry. After the canal is entirely freed from moisture the cavity is flooded with acetone, and dried again with a heated root dryer; a broach covered with absorbent cotton wool is then dipped into pure liquid paraffin oil and passed into the canal, following this up with hot air, the object being to thoroughly coat the inside of the cavity with oil, and thus permit the ready flow of the paraffin compound into every possible available space. For this purpose a special syringe has been placed on the market.

After the paraffin compound has congealed it may be finally covered with a layer of oxychloride, or oxyphosphate cement, to form a solid foundation for the future permanent filling.

It is claimed that this formula possesses the following qualities as a root canal filling material:

1. It is non-putrefactive.
2. It is sterile and slightly antiseptic.

3. It is easily introduced.

4. It is absolutely non-irritating to the soft tissues; when forced beyond the foramen of a deciduous or permanent tooth, or through a perforated root, it is borne by the soft tissues without the slightest reaction.

5. It does not discolor the tooth structure; it possesses a distinct yellow tint, which makes it readily discernible to the eyes.

6. It is non-porous and unchangeable; it produces an absolutely permanent and water-tight filling.

7. It is easily removed.

8. It will seal hermetically the dentinal tubuli and the apical foramina against bacterial invasion.

9. It is opaque to the Roentgen rays.

SODIUM-POTASSIUM FOR STERILIZING ROOT CANALS

BY DR. EMIL SCHREIER

[It was my pleasure to use this method for years. I have found it reliable.—EDITOR.]

It is now twenty years since I brought out this treatment, and I subsequently gave it greater publicity by a demonstration at the Chicago congress. It was at once endorsed by the best men in the profession, who continue to use it exclusively, and to speak of it in the highest terms of praise.

Were it not that the method appeared to be rather revolutionary,—as a distinctly new procedure which had no connection with the older ways of treatment previously in use,—it would have been taught in the colleges, and ere now generally accepted.

This is the underlying idea (and it is convincing): A root with a decayed pulp is regarded as a minute test-tube which contains water with albuminous matter in various stages of decomposition (chiefly fat) suspended therein, besides innumerable bacteria. The first and chief object of any treatment must be sterilization. To attain this a chemical process is resorted to. A suitable broach (as a blunt cleanser) is dipped in a com-

pound of metallic sodium and potassium, which adheres to it in minute particles. Charged in this way the broach is introduced into the canal, when the well-known chemical reaction immediately takes place. The water is decomposed; hydrogen is liberated, which burns, develops great heat, and thus at once destroys all bacteria. Sodium and potassium hydroxids are formed, and combine with the organic detritus into soap. A slight explosion results at the close of the reaction, and this throws out the bulk of the contents of the canal into the pulp chamber. A distinct smell of soap clinging to the broach shows the accuracy of the statement. What is left in the canal is aseptic soap. This being readily soluble, the final cleansing is easily performed. A few threads of cotton are wound loosely around a broach dipped in a weak antiseptic solution (preferably of hydrogen dioxid), and the contents left in the canal are soaked up. This done, the canal is perfectly clean and sweet, as can be proved by performing the whole treatment on an extracted tooth and afterward splitting the roots.

I will refrain from citing the many favorable criticisms of the method (uttered again and again in papers and discussions) by such men as M. L. Rhein, R. Ottolengui, McQuillan, Callahan and others, the first two even going so far as to proclaim it the sensation of the Chicago congress.

But let me here state that it is not the resort of the man who smears a drug in a pulpless tooth and claims that he has saved it. It is the expedient of the conscientious man who likes to do his work carefully. To such an operator this method will prove a reliable aid; it will never fail him, and it will really help him to achieve the best results, even in the most obstinate cases.

THE PAINLESS EXCAVATION OF TEETH

By Josef Novitzky, D.D.S., San Francisco

[Anything which will lead to lessening pain in dental operations should concern practitioners.—Editor.]

For the painless excavation of tooth cavities in vital teeth, where there is still calcic structure covering the pulp, the use

is recommended of a paste composed of urea hydrochlorid and quinin 20 grains, thymol 20 grains, paraformaldehyde 15 grains, zinc oxid 60 grains.

I have found this combination to be uniformly successful as a true anesthetic agent. I believe this formula to be original with me, and cheerfully offer it to the dental profession in the hope that they will have the same success in its use as I have had. I have used it for two years, and the few failures that I have had have been due to faulty technic. In some few cases the irritation of the formaldehyde has been enough to warrant its discontinuance in certain patients, but I would estimate my success to be higher than 85 per cent. The best results are obtained by sealing a little of the putty in the cavity for from one to three days (I prefer not to leave it longer than three days, as the action is too profound). Two days is usually ample.

For a time I hesitated to make public this formula, as I feared colloid degeneration from the action of the paraformaldehyde, in spite of the pulp remaining vital; but radiographs up to four months after its use show no degeneration or necrosis, and as the teeth are vital and normal, and my record of cases totals close to 200, I feel the time has come to offer it to the profession.

The urea and quinin and paraformaldehyde, with one-third of the zinc oxid, should be thoroughly ground up in a mortar; add the thymol, which, after grinding for a few moments, begins to moisten and forms a paste; grind in the balance of the zinc oxid until the paste assumes a puttylike consistency. This can be sealed in a tooth cavity with cement or gutta-percha, and after two or three days the cavity can be excavated absolutely painlessly. This mixture is quite staple, and I have found it to be (if anything) better at the end of six months than when it was freshly mixed, as the slight irritation caused by the fresh mixture is absent in the older preparation (presumably due to the weakening of the formalin), though its obtunding properties are still active.

A FEW SUGGESTIONS

By Dr. Edwards, of London

LOCATING ROOT CANALS

In an earlier issue of the *Quarterly* we gave a method of rendering the orifices of the root canals visible (against the dentine of the pulp chamber floor) by means of alcohol. The method now to be described, if rather more elaborate, certainly gives more decided results, and would, we feel sure, well repay the practitioner for the small extra trouble involved by the increased facility with which the canals can be reached.

The cavity having been properly excavated, a pellet of cottonwool is dipped in a 40 per cent solution of sulphuric acid and placed in the pulp chamber for not more than a minute. (Of course it is understood that the rubberdam must be used.) The pellet is removed, and the cavity filled with sodium bicarbonate to neutralize the acid. After leaving this in the pulp chamber for a few moments syringe well with water and dry thoroughly. When the cavity is dry another pellet of cotton is dipped into tincture of iodine, and placed in the pulp chamber and allowed to remain there for a minute. Upon the removal of this second pellet the orifices of the root canals will be distinctly visible as black spots. The object of the application of the acid is to dissolve any debris which might be blocking the orifices, and it also slightly enlarges them, while the iodine stains their margins and so renders them distinctly visible.

TAKING IMPRESSIONS AFTER DENTURE-WEARING

When we have to take impressions of a mouth in which a denture, especially a vulcanite one, has been worn for some time we frequently find that our wax plate does not fit, or if the trial plate is satisfactory the completed denture proves loose and drops down. The explanation is that when a denture is worn continuously the mucous membrane under it becomes slightly thickened, but this condition is dependent on the presence of the plate, and if the latter be left out of the mouth for about twenty-four hours the thickening disappears. Therefore

it is advisable that the patients should not wear the old denture for at least that time previous to their visits to the surgery for impressions, trial and fitting-in of the new case. The model made from the impression of the "rested" mouth will be smaller than that from the mouth in which the denture has only just been removed, and the case made to it will therefore fit tighter.

POLISHING STRIPS—A HINT

If both sides of the strips used in polishing are drawn sharply across a lump of parraffin-wax, before being used, they will be found to do their work quicker and better, and also will not be affected by moisture. The benefit is most marked in the case of the coarser grades.

EASILY REMOVABLE INLAY WAX IMPRESSIONS

Embed the knotted end of a stout silk thread in the piece of wax before placing it in the cavity, and when fully pressed home and carved up allow to harden thoroughly. A slight pull on the free end of the silk will withdraw the wax from the cavity without distortion.

NEURALGIA DUE TO PYORRHŒA

In cases of neuralgic pain arising from pyorrhœa a 20 per cent solution of tannic acid in alcohol, swabbed on the border of the gums on the side affected, will be found to give very great relief.

A TIP IN CEMENTING INLAYS

In order to ensure the maximum adhesion between the cavity wall and the inlay it is imperative that the former should be rendered as dry as possible. An additional means of assisting the adhesion is to apply a little of the cement liquid to the walls, and dry this immediately before introducing the cement.

TWO USES FOR ETHYL CHLORIDE

When taking impressions with "compo," especially in the case of the upper jaw, it will be found very useful to have a tube of ethyl chloride handy to spray onto the tray after it has been pressed home. This will greatly accelerate the hardening of the "compo," which has the double advantage of enabling the tray to be removed almost as soon as it is properly in posi-

tion, and also ensures that the impression will not "drag" in withdrawing it.

Another use for ethyl chloride (which is not so much appreciated as it should be) is in the extraction of temporary teeth. It is not advisable either to employ nitrous oxide or to inject a "local" into the gums in the case of children, owing to the difficulties of administration and dosage, and only too often such operations are performed without any obtundent. Ethyl chloride, requiring merely to be sprayed onto the exterior of the gum, presents no administration difficulties, and the entire painlessness of the extraction will greatly facilitate the establishment of "friendly relations" between the practitioner and his juvenile patient.

THE CRACKING OF TEETH IN SOLDERING

By Geo. J. Goldie, L.R.C.P., L.R.C.S., L.D.S., Edinburgh

Of all the accidents to which metal work is liable, perhaps the most vexing is cracked teeth. Nothing can be more annoying than to see hours of good work thus rendered useless in the final soldering. In considering the causes of such mishaps we, of course, put out of court such factors as carelessness, undue haste in drying, etc., as irrelevant, and proceed at once to examine the more important ones—viz., boraxing and investing. The application of borax, although it may seem a matter of no account, is yet a more serious operation than a mere glance would warrant one in supposing; it seems to me to be the only really difficult part in soldering, and accordingly it admits of no neglect.

The careless use of borax as a flux produces two kinds of cracks in porcelain—firstly, the crack which runs most usually from end to end of a tooth; and, secondly, the crack which is confined to the edges in apposition to the gold backing. The first of these—the more deadly of the two—is due to the presence of borax between the tooth and the backing, and as it often reaches that position by means of the pinholes in the

latter, its ravages can be easily cut short by care in "backing" the tooth. The second kind is not quite so easily accounted for. It is difficult to explain why the mere contact of borax with porcelain and gold under a red heat should result in a crack, but that it is so has been proved by experience. If, in a backed tooth, borax be allowed to flow over the edge of the backing onto the tooth substance, a hair-line crack will be found in the latter, running more or less parallel to the former and marking the limit of the borax invasion, thus showing that the crack is directly due to the flux. Borax seems to be so adhesive that after being flown by the flame it draws away a thin layer of porcelain as it contracts in cooling, producing the crack described. Such fractures are deep or shallow, away from or close to the gold, according to the amount of flux at fault, and their remedy is to be found in careful investing. It will now be seen that all joints should be made flux-tight. Where surfaces are to be made continuous by solder, as when a tooth is attached to a plate, or (in crown or bridge work) when the porcelain facing is to be joined to the cap, the point of contact must be made as small as possible by fine-fitting, and any space which may then be present ought to be filled with gold foil; this, however, need not be condensed to the solidarity of a filling in the mouth. Needless to say, the porcelain must be all hidden by the investing material. Now comes the application of the flux.

Borax may be used in two forms—viz., as a vitrified powder obtained by driving off the water of crystallization from ordinary borax and calcining the resultant clear mass, and as a mixture with water made by rubbing a piece of borax on a moist slab. Each of these has its good points. The powder, being thoroughly dry, does not swell when heat is applied to it, so that even if it should manage to get in between a tooth and its backing no crack will result; here it is distinctly better than its ordinary moist rival. A combination of the two, however, seems to answer best. The surfaces to be soldered, having been thoroughly cleaned, should be sparingly painted with some of the moist form mixed very thick (care being taken

not to touch the investment), and over this some of the powder should be dusted. The piece may then be dried and soldered in the usual way, and if any more flux be required during the operation the powder should obviously have the preference.

As regards the investing material a word may not be amiss. It will be noted above that it must be kept free from borax. The reason why I emphasize this is that, should the error of deluging metal and investment indiscriminately with the flux be committed, the operator will find on using the blowpipe that the surplus borax will flow into the porous investment, and sinking in it will drive it before it, and so lay bare the edges intended to be covered. This, of course, will produce the small edge cracks before mentioned. The investing material which gives the best results is marble dust in combination with plaster. It forms a hard, solid investment, and has the advantage over its softer compeers (such as asbestos).of being less porous; so that even should borax get onto the parts around the backing (and it is sometimes difficult to avoid), the denudation of the porcelain is not so great as when other materials are employed.

WONDERS OF THE BRAIN

One of the most inconceivable things in the nature of the brain is that the organ of sensation should in itself be insensible. To cut the brain gives no pain, yet in the brain alone resides the power of feeling pain in any part of the body. If the nerve which leads from it to the injured part be divided, it becomes instantly unconscious of suffering. It is only by communication with the brain that any kind of sensation is produced; yet the organ itself is insensible. But there is a circumstance more wonderful still; the brain itself may be removed—may be cut away down the *corpus callosum*—without destroying life. The animal lives and performs all its functions which are necessary to simple vitality, but no longer has a mind; it can not feel nor think. It requires that the food should be pushed into the stomach; once there, it is digested, and the animal will live and grow fat.